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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,649	03/08/2001	Junichi Yamanouchi	003510-083	4869

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EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,649

Applicant(s)

YAMANOUCHI ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-14 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/30/04 has been entered.

2. Applicants' amendment filed 4/30/04 overcomes all outstanding rejections of record.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

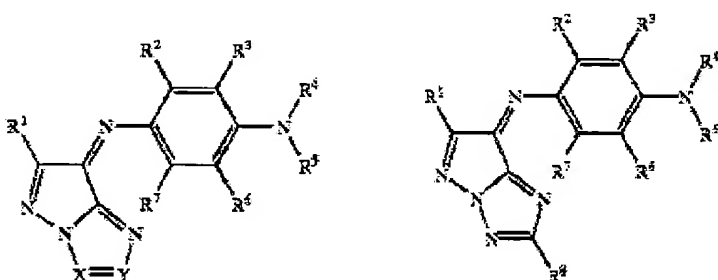
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4-14 and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishizuki et al. (U.S. 6,756,423).

Ishizuki et al. disclose ink jet ink comprising coloring composition that contains coloring particulates dispersed in water wherein the coloring particulates contain ionic group containing

vinyl monomer wherein the ionic groups include carboxyl group and sulfonic acid group, hydrophobic high boiling point organic solvent with boiling point greater than 150 °C and dielectric constant of 3-12 wherein the solvents include phenols, amides, and phosphoric acid esters, and oil-soluble dye of the formula:



wherein R¹ represents hydrogen group, aliphatic group, aromatic group, heterocyclic group, etc., R², R³, R⁶, and R⁷ are each hydrogen, halogen, aliphatic group, aromatic group, etc., R⁴ and R⁵ are each hydrogen, aliphatic group, aromatic group, or heterocyclic group, and X and Y each represent -C(R⁸)= or -N= where R⁸ is hydrogen, aliphatic group, or aromatic group. The coloring particulates have average particle size of 1-500 nm and are made using co-emulsification process. It is disclosed that the coloring composition comprises 100 part oil-soluble dye, 50-400 parts vinyl polymer, and 10-400 parts hydrophobic solvent from which it is calculated that the composition comprises approximately 11-63% dye, 9-78% vinyl polymer, and 2-73% hydrophobic solvent. There is also disclosed ink jet recording method wherein the above ink is loaded into ink jet printer and printed onto substrate coated with ink receiving layer containing porous inorganic pigment (col.1, lines 7-10, col.2, lines 21-26, col.8, lines 7-35,

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col.11, lines 37-54, col.12, lines 5-25, col.44, lines 61-65, col.46, lines 15-20, col.50, lines 49-63, col.52, lines 8-11 and 56-64, col.53, lines 1-9, col.66, lines 50-54, col.66, line 62-col.67, line 12, col.68, line 66-col.69, line 5, and col.69, lines 32-34 and 43-45). It is noted that there is no requirement in Ishizuki et al. that the ink or coloring composition contain ingredients that fall outside the scope of the present claims that recite "consisting essentially of" transitional language.

In light of the above, it is clear that Ishizuki et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 4-11, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao (U.S. 4,246,154) in view of Kiritani et al. (U.S. 4,665,411) and either JP 03231975 or JP 09059552.

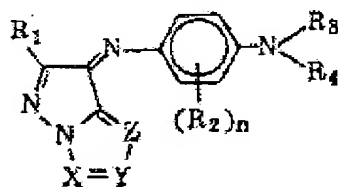
Yao discloses ink jet ink comprising coloring composition containing coloring particulates dispersed in water wherein the coloring particulates contain ionic group containing vinyl polymer, i.e. vinyl polymer obtained from carboxyl or sulfonic acid group containing monomers, oil-soluble dye, and hydrophobic high boiling point organic solvent with boiling point greater than 150 °C such as dibutyl phthalate or tributyl phosphate. Although there is no explicit disclosure of the dielectric constant of the solvent, it is well known, as found in Kiritani et al. (col.3, lines 41), that dibutyl phthalate has dielectric constant of 6.4. It is further disclosed that the coloring particulate has average particle size of 0.05-0.5 µm. There is also disclosed ink jet recording method wherein the above ink is loaded into ink jet printer and then printed onto substrate. Although there is no explicit disclosure that the printer contains ink cartridge which stores the ink, it would have been obvious to one of ordinary skill in the art that such cartridge is an intrinsic feature of the ink jet printer. Attention is drawn to example 4 of Yao that discloses coloring composition comprising approximately 32% oil-soluble dye, 63% hydrophobic solvent,

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i.e. tricresyl phosphate, and 5% ionic group containing polymer (col.1, lines 6-7, col.1, lines 67-col.2, line 1, col.2, lines 23-25, col.2, lines 59-66, col.9, lines 3-14 and 22-24, and col.10, lines 25-27 and 40-47). It is noted that there is no requirement in Yao that the ink or coloring composition contain ingredients that fall outside the scope of the present claims that recite "consisting essentially of" transitional language.

The difference between Yao and the present claimed invention is the requirement in the claims of specific type of oil-soluble dye.

JP 03231975, an English translation of which is included in this office action, is drawn to ink jet ink and discloses an oil-soluble dye of the formula:

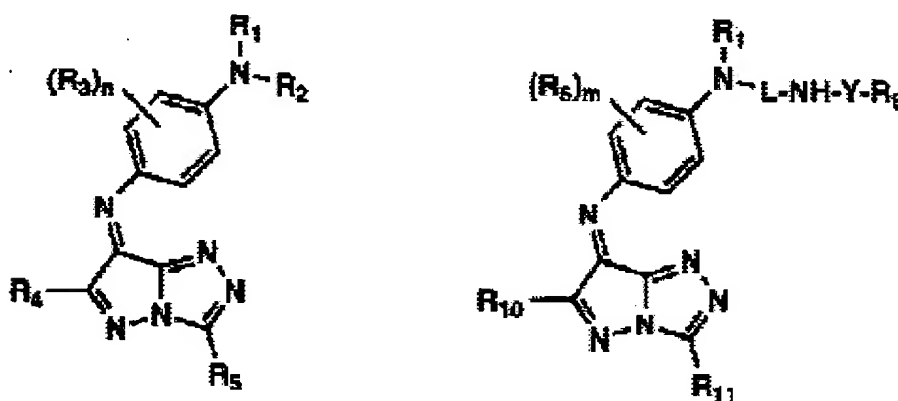


wherein R_3 and R_4 , which correspond to presently claimed R^4 and R^5 , are each hydrogen, alkyl, cycloalkyl, aralkyl, or aryl group, R_2 , which corresponds to presently claimed R^2 , R^3 , R^6 , and R^7 are each hydrogen, cyano, alkyl, alkoxy, aryl, amino, or halogen, R_1 , which corresponds to presently claimed R^1 , is hydrogen, cyano, alkyl, alkoxy, aryl, amino, or halogen, presently claimed X^1 and Y are independently either $-CR_5=$ or $-N=$, where R_5 is hydrogen or alkyl, aryl, or heterocyclic, group, and presently claimed B^1 is $=C(R^6)-$ and B^2 is $-C(R^7)=$ wherein R^6 and R^7

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are defined above (abstract, claim 1, page 7, pages 18-25). The motivation for using such dye is to produce a printed image with good hue (page 5, first full paragraph).

Alternatively, JP 09059552, which is drawn to ink jet ink, disclose the use of oil-soluble dyes of the formula:



wherein R_1 and R_2 , corresponding to presently claimed R^4 and R^5 , are hydrogen, aliphatic, aromatic, or heterocyclic group, L is alkylene group, Y is carbonyl or sulfonyl group, R_9 is aromatic, aliphatic, heterocyclic, alkoxy, or amino group, R_3 or R_6 , which each correspond to either presently claimed R^2 , R^3 , R^6 , and R^7 are hydrogen, halogen, alkoxy, aryl, carboxyl, or amino group, R_4 or R_{10} , which each correspond to presently claimed R^1 , are aliphatic, aromatic, heterocyclic, alkoxy, sulfonyl, or amino group, presently claimed X^1 is $-CR_5=$ or $-CR_{11}=$, which each correspond to presently claimed $-C(R^8)=$, where R_5 or R_{11} is hydrogen, aliphatic, or aromatic group, presently claimed Y is $-N=$, and presently claimed B^1 is $=C(R^6)-$ and B^2 is $-C(R^7)=$ wherein R^6 and R^7 are defined above (abstract, claim 1, claim 3, and paragraphs 9, 16,

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24-30, and 39-56). The motivation for using such dye in the ink composition is that the dye produces a printed image that has excellent color tone, reproducibility, and resistance to light (paragraph 7).

In light of the motivation for using specific type of oil-soluble dye disclosed by JP03231975 or JP 09059522, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink jet ink of Yao in order to produce an ink with good hue, or alternatively, excellent color tone, reproducibility, and resistance to light, and thereby arrive at the claimed invention.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yao in view of Kiritani et al. and either JP 03231975 or JP 09059552 as applied to claims 1, 4-11, 13-14, and 17 above, and further in view of Idei et al. (U.S. 5,302,437).

The difference between Yao in view of Kiritani et al. and either JP 03231975 or JP 09059552 and the present claimed invention is the requirement in the claims of substrate that has ink-receiving layer containing porous inorganic pigment.

Idei et al., which is drawn to ink jet recording sheet, disclose that when ink jet recording is carried out on non-coated, i.e. plain, paper, the images are low in colorfulness, clarity, printed dot density, and image density resulting in a deterioration of dot shape, feathering, and strike-through. Idei et al. also disclose that when ink jet recording is carried out on coated paper, the colorfulness, clarity, feathering, and strike-through are improved as compared to recording on non-coated paper. The coated paper includes paper or transparent film having a silica coating (col.3, lines 15-42 and 57-66 and col.4, lines 54-57).

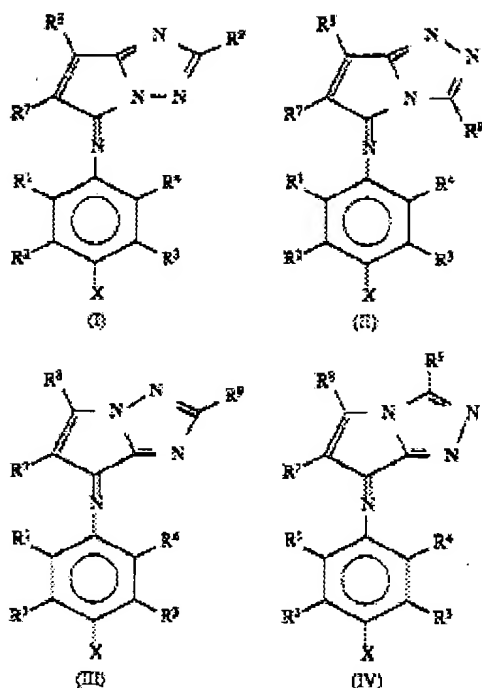
In light of the motivation for using coated paper as compared to plain paper disclosed by Idei et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use coated paper having a silica coating as the printing medium in Yao in order to produce a printed image which has good colorfulness and clarity as well as little feathering or strike-through, and thereby arrive at the claimed invention.

9. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao (U.S. 4,246,154) in view of Suzuki et al. (U.S. 5,508,421).

Yao discloses ink jet ink comprising coloring composition containing coloring particulates dispersed in water wherein the coloring particulates contain ionic group containing vinyl polymer, i.e. vinyl polymer obtained from carboxyl or sulfonic acid group containing monomers, oil-soluble dye, and hydrophobic high boiling point organic solvent with boiling point greater than 150 °C such as dibutyl phthalate or tributyl phosphate. Attention is drawn to example 4 of Yao that discloses coloring composition comprising approximately 32% oil-soluble dye, 63% hydrophobic solvent, i.e. tricresyl phosphate, and 5% ionic group containing polymer (col.1, lines 6-7, col.1, lines 67-col.2, line 1, col.2, lines 23-25, col.2, lines 59-66, col.9, lines 3-14 and 22-24, and col.10, lines 25-27 and 40-47). It is noted that there is no requirement in Ishizuki et al. that the ink or coloring composition contain ingredients that fall outside the scope of the present claims that recite “consisting essentially of” transitional language.

The difference between Yao and the present claimed invention is the requirement in the claims of specific type of oil-soluble dye.

Suzuki et al. disclose the use of oil-soluble dyes of the formula:



which are identical to the dyes presently claimed and wherein X is OH or NR⁵R⁶, R¹-R⁴ and R⁹ are hydrogen, alkyl, halogen, etc., R⁷, which corresponds to presently claimed R²⁰¹, is cyano, COR, etc., and R⁸, which corresponds to presently claimed R²⁰², is hydrogen, heterocyclic group, alkyl, aryl, cyano, etc.. It is also disclosed that the dyes are suitable for use in inks (col.3, lines 38-67, col.4, lines 12-29, col.6, line 42-col.7, line 57, col.9, lines 12-52, col.10, lines 14-30, and col.13, lines 3-5 and 21-23). The motivation for using such dyes is that they possess high absorption and high fastness to light and heat (col.2, lines 7-10 and col.3, lines 14-21).

In light of the motivation for using specific type of oil-soluble dye disclosed by Suzuki et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to

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use such dye in the ink jet ink of Yao in order to produce an ink which possess high absorption and high fastness to light and heat, and thereby arrive at the claimed invention.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
7/2/04